

## **EXHIBIT 55**

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10  
11 IN THE UNITED STATES DISTRICT COURT  
12 FOR THE CENTRAL DISTRICT OF CALIFORNIA  
13 WESTERN DIVISION  
14

15 **STEVEN RUPP; STEVEN**  
16 **DEMBER; CHERYL JOHNSON;**  
17 **MICHAEL JONES;**  
18 **CHRISTOPHER SEIFERT;**  
19 **ALFONSO VALENCIA; TROY**  
20 **WILLIS; and CALIFORNIA RIFLE**  
21 **& PISTOL ASSOCIATION,**  
22 **INCORPORATED,**

23 Plaintiffs,

24 v.

25 **ROB BONTA, in his official capacity**  
26 **as Attorney General of the State of**  
27 **California; and DOES 1-10,**

28 Defendants.

8:17-cv-00746-JLS-JDE

**SUPPLEMENTAL SUR-  
REBUTTAL EXPERT REPORT  
AND DECLARATION OF LOUIS  
KLAREVAS**

Courtroom: 8A  
Judge: The Honorable Josephine  
L. Staton

Action Filed: April 24, 2017

<sup>1</sup> Rob Bonta has succeeded former Attorney General Xavier Becerra as the Attorney General of the State of California. Pursuant to Federal Rule of Civil Procedure 25(d), Attorney General Bonta, in his official capacity, is substituted as the defendant in this case.

**SUPPLEMENTAL SUR-REBUTTAL EXPERT REPORT AND  
DECLARATION OF LOUIS KLAREVAS**

I, Louis Klarevas, declare under penalty of perjury that the following is true and correct:

1. Plaintiffs’ witness Gary Kleck has submitted an expert witness rebuttal report responding, in part, to my expert findings and opinions in the present case (“Kleck Rebuttal Report”).<sup>2</sup> This sur-rebuttal expert report and declaration (“Sur-Rebuttal”) responds to paragraphs 47 through 69 of the Kleck Rebuttal Report, the section that pertains directly to my supplemental expert report and declaration submitted in this matter on January 6 (“Klarevas Supplemental Report”).<sup>3</sup> I shall address Kleck’s rebuttal opinions in the order that he presents them.

2. This Sur-Rebuttal Report is based on my own personal knowledge and experience, and, if I am called as a witness, I could and would testify competently to the truth of the matters discussed in it.

**I. MASS SHOOTINGS ARE A THREAT TO PUBLIC SAFETY**

3. *Kleck Rebuttal Opinion #1*: Mass shootings, in the aggregate, do not constitute the most serious threat to public safety.

4. Purportedly quoting my Supplemental Report, Kleck writes, “However horrific individual mass shootings may be, it is absurd to describe their threat to the safety of Americans as ‘*the greatest threat ... to the ... safety of American society in the present era.*’”<sup>4</sup> Kleck provides no page citation for this quotation because this quote does not appear in my Supplemental Report. What I actually wrote in

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<sup>2</sup> Expert Witness Rebuttal Report of Gary Kleck, *Rupp v. Bonta*, Case No.: 8:17-cv-00746-JLS-JDE (C.D. Cal.), February 3, 2023 (“Kleck Rebuttal Report” hereinafter).

<sup>3</sup> Supplemental Expert Report and Declaration of Louis Klarevas, *Rupp v. Bonta*, Case No.: 8:17-cv-00746-JLS-JDE (C.D. Cal.), January 6, 2023 (“Klarevas Supplemental Report” hereinafter). My background and qualifications, including my CV, are available in *ibid*.

<sup>4</sup> Kleck Rebuttal Report, para. 48; emphasis added.

1 my Supplemental Report is that “the deadliest individual acts of intentional  
2 criminal violence in the United States since the terrorist attack of September 11,  
3 2001, have all been mass shootings.”<sup>5</sup> This is not merely an opinion. It is a fact.  
4 In the post-9/11 era, *in terms of individual acts*, no other form of intentional  
5 criminal violence has been deadlier than the mass shooting.<sup>6</sup>

6 5. If Kleck’s point is that there are things that, *in the aggregate*, kill more  
7 Americans than mass shootings, that would be accurate. After all, annually, nearly  
8 700,000 Americans will die from heart disease, and approximately 600,000  
9 Americans will die from cancer.<sup>7</sup>

10 6. But this does not appear to be Kleck’s overarching point. Instead,  
11 Kleck writes, “we can state the seriousness of the threat to the safety of  
12 American[s] by computing the fraction who will be killed in a ‘gun massacre’ in a  
13 given year.”<sup>8</sup> Kleck then attempts to dismiss “the seriousness of the threat” of mass  
14 shootings by comparing the odds of dying in a gun massacre (which in the  
15 academic literature is also known as a “high-fatality mass shooting” that results in 6  
16  
17

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18 <sup>5</sup> Klarevas Supplemental Report, para. 6.

19 <sup>6</sup> In his Rebuttal Report, apparently citing p. 5 of my Supplemental Report,  
20 Kleck claims, “[Klarevas] documented 113 ‘gun massacres’ (which he defines as  
21 incidents involving 6 or more dead), in which 1,009 people were killed, over the  
22 period from 1968 through September 2017.” Kleck Rebuttal Report, para. 48. The  
23 section of my Supplemental Report that Kleck is referencing covered January 1,  
24 1973, through December 31, 2022, not “1968 through September 2017.” This  
25 section of my Supplemental Report not only examined gun massacres, but also  
26 mass public shootings, identifying 50-year patterns for the 136 gun massacres (also  
27 known as “high-fatality mass shootings”) that resulted in 1,253 deaths and the 175  
28 mass public shootings that resulted in 1,259 deaths. *See*, Klarevas Supplemental  
Report, para. 13 and Exhibits. B-C. The statistics that Kleck attributes to me in  
para. 48 of his Rebuttal Report do not appear in my Supplemental Report.

<sup>7</sup> Centers for Disease Control and Prevention, “Wide-ranging ONLINE Data  
for Epidemiologic Research (WONDER),” *available at* [wonder.cdc.gov](https://wonder.cdc.gov) (last  
accessed February 20, 2023).

<sup>8</sup> Kleck Rebuttal Report, para. 49

1 or more victims killed) to the odds of dying in a lightning strike.<sup>9</sup> This is a bizarre  
2 exercise for a couple of reasons.

3 7. For starters, why compare high-fatality mass shootings (which have a  
4 minimum fatality threshold of 6 deaths) to lightning strikes (which do not have a  
5 minimum fatality threshold)? Why not instead compare high-fatality mass  
6 shootings to high-fatality lightning strikes? Or, alternatively, why not compare all  
7 shooting deaths to all lightning-strike deaths? Perhaps the answer lies in the fact  
8 that such symmetrical comparisons would establish that lightning strikes are not  
9 deadlier than gun violence—not even close—thus undermining Kleck’s entire  
10 point. For instance, comparing high-fatality mass shootings resulting in 6 or more  
11 victims killed to high-fatality lightning strikes resulting in 6 or more victims killed  
12 would show that, between 2001-2021, there were 71 such mass shootings, resulting  
13 in 736 cumulative deaths, compared to no such lightning strikes, resulting in zero  
14 cumulative deaths.<sup>10</sup> Similarly, using the same timeframe of 2001-2021, comparing  
15 all shooting deaths to all lightning-strike deaths would show that the former  
16 resulted in a total of 728,278 deaths and the latter resulted in a total of 700 deaths.<sup>11</sup>

17 8. Next, and arguably more relevant, it appears that this exercise of  
18 comparing mass shootings to lightning strikes is meant to suggest that addressing  
19 mass shootings should not be a policy priority. I counted at least six occasions in  
20 his Rebuttal Report where Kleck advanced an argument that “mass shootings are  
21 rare,” including at one point insisting that being killed in a gun massacre is  
22 comparable to “being killed by a bolt of lightning—itself a freakishly rare event.”<sup>12</sup>  
23 Bombings on American soil occur with far less frequency than mass shootings. So  
24 too do hijackings of commercial airliners for purposes of crashing them into critical  
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26 <sup>9</sup> *Ibid.*

27 <sup>10</sup> CDC, *supra* note 7.

28 <sup>11</sup> *Ibid.*

<sup>12</sup> Kleck Rebuttal Report, paras. 11, 13-14, 29, 49, 52.

1 infrastructures, which are arguably the rarest of all acts of violence in United States  
2 history, having occurred only once. By Kleck's reasoning, these events are not  
3 appropriate targets for policy interventions on account of their relative infrequency.

4 9. Frequency of occurrence is not a reason to dismiss a threat to public  
5 health, societal safety, or homeland security. Just like securing America's  
6 infrastructure, public spaces, and airspace are important public policy objectives, so  
7 too is securing America's citizenry from mass-casualty acts of gun violence, which  
8 in the post-9/11 era have accounted for the deadliest individual acts of criminal  
9 violence in the United States.

## 10 **II. MASS SHOOTING VIOLENCE IS ON THE RISE**

11 10. *Kleck Rebuttal Opinion #2*: There is no upward trend in the frequency  
12 of mass shootings in recent years.

13 11. Next, Kleck attempts to disprove my analysis which found that mass  
14 shooting violence is on the rise. His rebuttal on this point is flawed for two reasons.

15 12. First, Kleck asserts that my conclusion that there is "an upward trend"  
16 is the result of "narrowing [my] focus to just a tiny subset of mass shootings—cases  
17 in which 10 or more victims were killed."<sup>13</sup> Kleck then acknowledges, "There was  
18 indeed an upward trend in this subset."<sup>14</sup> But, according to Kleck, "the numbers  
19 involved are so small that any statements about trends are trivial and not indicative  
20 of any increase in the aggregate level of threat to Americans' safety."<sup>15</sup> Leaving  
21 aside his claim that 30 mass shootings resulting in double-digit fatalities is a  
22 "small" number that results in "trivial" trends, Kleck ignores my parallel findings  
23 drawing on two distinct, larger data sets of high-fatality mass shootings (resulting  
24 in six or more fatalities, regardless of location or motive) and mass public shootings  
25 (resulting in four or more fatalities in an incident that primarily occurs in a public

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26 <sup>13</sup> *Ibid.*, para. 51.

27 <sup>14</sup> *Ibid.*

28 <sup>15</sup> *Ibid.*

1 setting and is unrelated to an underlying criminal activity) to establish an upward  
2 trend. Whether examining the 136 high-fatality mass shootings that resulted in  
3 1,253 deaths or the 175 mass public shootings that resulted in 1,259 deaths, the  
4 upward trends across the last 50 years (1973-2022) are undeniable.<sup>16</sup> Yet, Kleck  
5 ignores this entire section of my Supplemental Report and, instead, misrepresents  
6 my conclusion that mass shooting violence is on the rise as being based on a single  
7 data set that he feels is “so small that any statements about trends are trivial.”<sup>17</sup>

8 13. Second, Kleck insists that if we use a totally different—fourth—data  
9 set, “it shows no meaningful trend of any kind.”<sup>18</sup> The data set that Kleck  
10 references is maintained by the Gun Violence Archive (GVA). The GVA uses a  
11 broad definition of mass shootings: an incident resulting in four or more people  
12 being shot, regardless of whether the wounds are fatal or non-fatal.<sup>19</sup> In his  
13 Rebuttal Report, Kleck argues, “The most comprehensive listing of *all* mass  
14 shootings ... can be found in the Gun Violence Archive.”<sup>20</sup> The contribution of the  
15 GVA to the identification of mass shootings, broadly defined, is indeed valuable.  
16 However, GVA data is limited for two reasons: 1) the GVA data set does not  
17 contain any incidents that occurred prior to 2013; and 2) the GVA data set does not  
18 systematically identify the instruments of violence that were used in mass  
19 shootings. Because of these two limitations, GVA data is not particularly useful for  
20 tracking the use of assault weapons and large-capacity magazines (LCMs) in mass  
21 shootings, especially over a period of time going back to January 1, 1990, when  
22 California became the first state to institute an assault weapons ban.

23  
24 <sup>16</sup> Klarevas Supplemental Report, Figs. 1-4 and Exhibits B-C.

25 <sup>17</sup> Kleck Rebuttal Report, para. 51.

26 <sup>18</sup> *Ibid.*, para. 50.

27 <sup>19</sup> Gun Violence Archive, “General Methodology,” *available at*  
<https://www.gunviolencearchive.org/methodology> (last accessed February 20,  
2023).

28 <sup>20</sup> Kleck Rebuttal Report, para. 17; emphasis in original.



1           14. Nevertheless, Kleck appears to be of the view that 9 years of GVA  
2 data is more robust than the three mass shooting data sets I consulted, which each  
3 span at a minimum 50 years of data. Again, Kleck's approach to this issue is  
4 problematic, resulting in flawed conclusions.

5           15. To begin with, Kleck lauds the GVA data set. But then, *without any*  
6 *explanation*, Kleck opts not to use the full GVA data set. The GVA captures all  
7 shootings resulting in four or more casualties, regardless of whether the casualties  
8 are fatal or non-fatal. Kleck instead chose to limit his analysis of GVA data to  
9 shootings resulting in four or more fatalities, excluding the hundreds of cases in the  
10 GVA data set that occur annually that do not result in a minimum of four deaths.  
11 Without explaining why he does this, his decision appears to be arbitrary.<sup>21</sup> What  
12 would the data show if the full GVA data set were plotted in a chronological  
13 fashion? Figure 1a provides the answer. As can be seen, tracking all the incidents  
14 in the GVA data set results in the undeniable conclusion that mass shootings,  
15 broadly defined, have occurred with increased frequency in the past decade. Kleck,  
16 however, insists on assessing only those incidents in the GVA data set that resulted  
17 in four or more deaths. But even limiting the data points to this casualty threshold  
18 still results in an upward trend between 2014 and 2022, as shown in Figure 1b.

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23           <sup>21</sup> In the past, Kleck has defined mass shootings as involving more than six  
24 casualties. In a 2016 article, he noted that "The six-victim cutoff was used because  
25 an offender could shoot as many as six persons using a typical old-fashioned six-  
26 shot revolver." As he explained, he "did not employ the oft-used definition of  
27 'mass murder' as a homicide in which four or more victims were killed, because  
28 most of these involve just four to six victims, which could therefore have involved  
as few as six rounds fired, a number that shooters using even ordinary revolvers are  
capable of firing without reloading." Gary Kleck, "Large-Capacity Magazines and  
the Casualty Counts in Mass Shootings: The Plausibility of Linkages," 17 *Justice  
Research and Policy* 28 (2016), at 33; internal citations omitted.



# Figure 1. Gun Violence Archive (GVA) Annual Mass Shooting Trends

Figure 1a. GVA Mass Shootings (4+Shot), 2014-2022

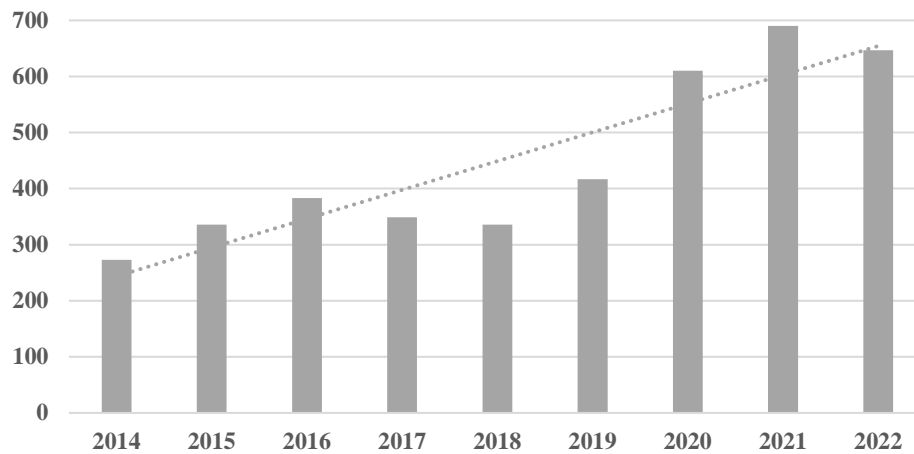
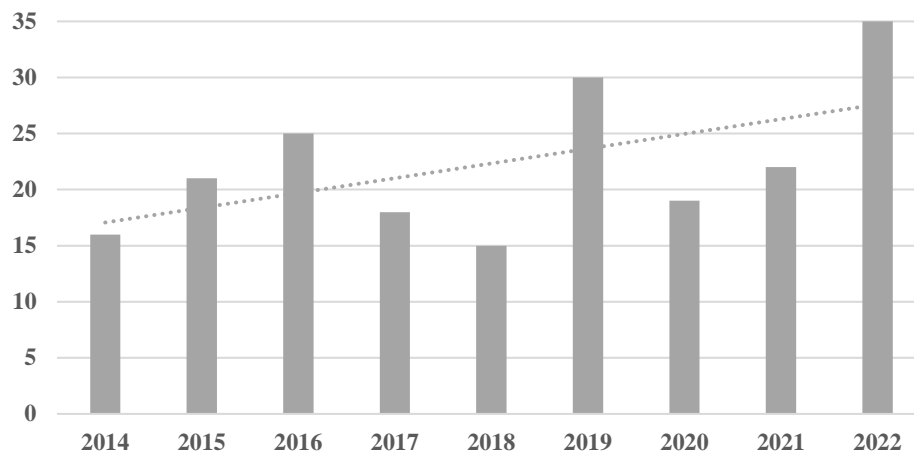


Figure 1b. GVA Mass Shootings (4+Killed), 2014-2022 [Kleck *Rupp* Rebuttal Report]



16. Kleck's analysis is suspect for another reason as well. In an expert declaration filed in *Duncan v. Bonta*, Kleck identified 222 mass shootings between 2013 and 2021 resulting in four or more deaths in the GVA data set.<sup>22</sup> In his present Rebuttal Report, Kleck identified 201 mass shootings between 2014 and 2022 resulting in four or more deaths in the GVA data set.<sup>23</sup> Mysteriously, the 25 incidents from 2013 that Kleck identified in his *Duncan* declaration have disappeared from his current Rebuttal Report (*see* Figure 2). But Kleck has added

<sup>22</sup> Declaration of Gary Kleck in Support of Plaintiffs' Supplemental Brief, *Duncan v. Bonta*, Case No.: 17-cv-1017-BEN-JLB (S.D. Cal.), December 1, 2022, Table 1.

<sup>23</sup> Kleck Rebuttal Report, Table 1.

35 incidents from 2022. Accounting for new data points that were previously unavailable is an appropriate methodological approach. But it is unclear why Kleck removed the incident data points from 2013. Regardless, if Kleck's numbers were consistent, he should list 232 incidents from 2014 through 2022 ( $222-25+35=232$ ). However, Kleck now claims that, according to the GVA, there have been only 201 mass shootings resulting in 4 or more people killed from 2014 through 2022. Clearly, there is a data mismatch between his two analyses (his *Duncan* Declaration and his Rebuttal Report in the present case), meaning that *at least* one of them must be incorrect.

## Figure 2. Kleck Tables on Gun Violence Archive Mass Shootings (4+ Killed)

Figure 2a. Kleck Table 1 [*Duncan* Supplemental Declaration]

Table 1 – Prevalence of LCM Use in All Mass Shootings, 2013-2021

Year	Mass Shootings	LCM-involved Mass Shootings
2013	25	2
2014	20	0
2015	26	4
2016	25	4
2017	24	4
2018	22	3
2019	31	4
2020	21	0
2021	28	5
2013-2021	222	26

Figure 2b. Kleck Table 1 [*Duncan* Supplemental Declaration]

Table 1. The Share of Mass Shootings in Which LCMs Were Used, 2014-2022

Year	Total Mass Shootings	LCM-involved Mass Shootings
2014	16	0
2015	21	4
2016	25	4
2017	18	4
2018	15	3
2019	30	4
2020	19	0
2021	22	5
2022	35	5
2014-2022	201	29

1           17. Nevertheless, whether one examines the three distinct data sets that I  
2 reviewed in my Supplemental Report, the full GVA data set, or the GVA subset  
3 that Kleck identified in his present Rebuttal Report—five different data sets in all—  
4 the outcome is the same. All five data sets, including the two GVA data sets  
5 plotted in this Sur-Rebuttal, support my conclusion that mass shooting violence is  
6 on the rise (*see* Figure 1).

7       **III. ASSAULT WEAPONS ARE ALMOST NEVER USED BY PRIVATE CITIZENS**  
8       **IN SELF-DEFENSE DURING ACTIVE SHOOTINGS**

9           18. *Kleck Rebuttal Opinion #3*: The use of assault weapons to stop mass  
10 shootings is irrelevant to the debate about the merits of restrictions on assault  
11 weapons.

12           19. As established in my Supplemental Report, “assault weapons are used  
13 by civilians with a far greater frequency to perpetrate mass shootings than to stop  
14 mass shootings.”<sup>24</sup> Kleck does not dispute this fact. Instead, he considers it  
15 “irrelevant.”<sup>25</sup> Particularly, Kleck argues that the use of assault weapons to stop  
16 mass shootings is not “an important issue” because the instances where private  
17 citizens used assault weapons in self-defense during an attempted mass shooting  
18 “are just too small for the issue to be important.”<sup>26</sup> While this is Kleck’s  
19 unsubstantiated personal opinion, the fact remains that assault weapons are rarely  
20 used to stop active shootings and are, instead, used much more frequently in high-  
21 fatality mass shootings and mass public shootings.

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26       <sup>24</sup> Klarevas Supplemental Report, para. 27.

27       <sup>25</sup> Kleck Rebuttal Report, para. 53.

28       <sup>26</sup> *Ibid.*

**IV. AR- AND AK-PLATFORM ASSAULT RIFLES ARE USED IN MASS SHOOTINGS AT RATES THAT ARE SUBSTANTIALLY GREATER THAN THE RATES AT WHICH THESE ASSAULT RIFLES CIRCULATE IN THE CIVILIAN FIREARM STOCK**

20. *Kleck Rebuttal Opinion #4*: There does not appear to be a greater preference for using assault weapons among mass shooters than among noncriminal gun owners.

21. In a strawman argument, Kleck accuses me of making “an assertion of a greater preference for *using* AWs among mass shooters than among noncriminal gun owners.”<sup>27</sup> I do not claim that assault weapons are *used* by mass shooters with greater frequency than they are *used* by noncriminal gun owners. I never advanced such a view for a simple reason: with one exception, I am unaware of any data on the frequency with which noncriminal gun owners have actually used assault weapons. Indeed, Kleck provides no such data in his Rebuttal Report. The only data of which I am aware on the frequency with which assault weapons have been actually used is the data that I just discussed in the previous section on defensive gun uses (DGUs) during active shooter incidents. As I documented in my Supplemental Report, according to official FBI reports, only 15 (3.7%) of all 406 active shooter incidents between 2000 and 2021 involved a private citizen intervening with a personal firearm, and, of these 15 DGU incidents, only 1 (6.7%) involved an assault weapon. In other words, of the 406 active shooter incidents, only 1 (0.2%) involved a private citizen intervening with an assault weapon.<sup>28</sup>

22. Again, Kleck is not disputing the accuracy of the FBI data on civilian DGUs in active shootings. Moreover, he does not provide any evidence that contradicts my finding that the use of assault weapons, as a share of all firearms used, in both high-fatality mass shootings and mass public shootings, has increased

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<sup>27</sup> *Ibid.*, para. 54; emphasis added.

<sup>28</sup> Klarevas Supplemental Report, para. 26.

1 in the last 50 years. Nor does he offer any evidence that contradicts my finding that  
2 assault weapons have been used in at least half of all high-fatality mass shootings  
3 and mass public shootings in the past 5 years.<sup>29</sup> Kleck is instead arguing that I  
4 provide “no basis for an assertion of a greater preference for *using* AWs among  
5 mass shooters than among noncriminal gun owners.”<sup>30</sup> But as just discussed, I  
6 never advanced such an assertion in my Supplemental Report.<sup>31</sup> What I did claim  
7 is the following:

8 If assault weapons were used in proportion to the percentage of  
9 modern sporting rifles [MSRs] in circulation, approximately 5% of all  
10 mass shootings would involve assault weapons. However, ... civilian  
11 ownership rates and mass-shooter use rates are not similar. Indeed,  
12 the difference is approximately ten-fold, with the rate at which assault  
weapons are now used to commit mass murder far outpacing the rate  
at which [MSRs] circulate amongst civilians in the United States.<sup>32</sup>

13 **V. THE USE OF ASSAULT WEAPONS IN MASS SHOOTINGS RESULTS, ON**  
14 **AVERAGE, IN SUBSTANTIALLY MORE DEATHS**

15 23. *Kleck Rebuttal Opinion #5*: It is not established that the use of assault  
16 weapons causes an increase in the casualty counts of mass shootings.

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19 <sup>29</sup> *Ibid.*, Figs. 5-6.

20 <sup>30</sup> Kleck Rebuttal Report, para. 54; emphasis added.

21 <sup>31</sup> Kleck also offers a confusing and tortured strawman argument accusing me  
22 of making a “suggested assertion that the rise in double-digit mass shootings  
23 corresponded in time to the rising popularity or availability of *semi-auto guns*.”  
Kleck Rebuttal Report, para. 59; emphasis added. I never discussed semiautomatic  
firearms as a class of firearms at any point in my Supplemental Report. Indeed, the  
word “semiautomatic” is never used in my Supplemental Report.

24 <sup>32</sup> Klarevas Supplemental Report, para. 15. Kleck criticizes my comparison  
25 of assault weapons used by mass shooters with MSRs in civilian circulation. Kleck  
26 Rebuttal Report, para. 56. Perhaps there are MSRs that might be exempt from  
27 California’s statutory definition of assault weapons. However, if there are exempt  
28 MSRs, Kleck does not identify any. As such, he provides no evidence to support a  
change in my conclusions pertaining to the percentage of MSRs as a share of all  
firearms in civilian circulation.

1           24. Kleck concedes that “Klarevas accurately notes the higher casualty  
2 counts in mass shootings committed with AWs.”<sup>33</sup> Yet, Kleck surmises that it is  
3 not the weaponry that is the “cause” of these higher death tolls, but rather some  
4 other factor.<sup>34</sup> According to Kleck, the “association” between the use of assault  
5 weapons in mass shootings and increased fatalities “*may be entirely due* to the  
6 common effect of the *lethality of offender intentions* on both the number of people  
7 the offender shoots and the choice of using a gun type or magazine perceived  
8 (accurately or not) to be especially useful for hurting large numbers of people.”<sup>35</sup>  
9 As the phrase “may be entirely due” suggests, Kleck is engaging in speculation.  
10 Perhaps Kleck’s analysis might be better served by answering the question hidden  
11 in his hypothesis: Why do mass shooters believe that assault weapons are  
12 “especially useful for hurting large numbers of people”?<sup>36</sup>

13           25. Kleck is suggesting that lethal intentions (“the lethality of offender  
14 intentions”), as opposed to the firearms used, are what really “cause” people to die  
15 in mass shootings. If this sounds familiar, it is because it is another way of saying,  
16 ‘guns don’t kill people, people kill people.’ But as any well-read student of  
17 criminology and security studies knows, acts of violence involve intentions *and*  
18 capabilities. And capabilities are central to our causal understanding of murder.  
19 This is why the autopsy reports of firearm-homicide victims identify the cause of  
20 death as “gunshot wound,” as opposed to “lethality of offender intention.”<sup>37</sup>

21           26. After engaging in this exercise, Kleck shifts his approach and states  
22 that “[t]here is in fact no sound scientific basis for the claim that there are features  
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24           <sup>33</sup> Kleck Rebuttal Report, para. 59.

25           <sup>34</sup> *Ibid.*

26           <sup>35</sup> *Ibid.*; emphasis added.

27           <sup>36</sup> *Ibid.*

28           <sup>37</sup> See, for example, Vernard Irvine Adams, *Guidelines for Reports by Autopsy Pathologists* (2008).

1 [of] AWs that actually cause more deaths in mass shootings.”<sup>38</sup> In particular, Kleck  
2 states, “there is no credible evidence that the kinds of firearms banned by California  
3 as AWs are any more accurate, lethal, or rapid-firing than their unbanned semi-  
4 automatic counterparts.”<sup>39</sup> In essence, Kleck singles out three tests for gauging the  
5 lethality of assault weapons—and, not surprisingly, none of them are direct  
6 measures of offender intentions.

7 27. Interestingly, Kleck does not offer any authority that assesses the  
8 impact of an instrument of violence using precision, ballistics, or firing efficiency.  
9 That I am aware, Kleck is neither a firearms expert nor a ballistics expert. But  
10 assuming *arguendo* that these are helpful indices, Kleck’s testimony conflicts with  
11 testimony of plaintiffs’ rebuttal expert, Mark Hanish. In discussing AR-15 rifles,  
12 Hanish notes, “Most of these rifles were designed with a pistol grip due to the  
13 overall architecture of the rifle. The pistol grip provides for proper ergonomics  
14 allowing a person to hold, aim, and manipulate the rifle *efficiently and accurately*.  
15 The rifles are more comfortable to shoot, facilitating greater accuracy and  
16 control.”<sup>40</sup> Hanish claims that the features of certain assault weapons improve  
17 accuracy in certain circumstances. And by being “more comfortable to shoot,” it is  
18 even possible that some active shooters might be able to fire their weapons more  
19 effectively in a rapid-fire manner. Hanish appears to address two of Kleck’s three  
20 criteria: accuracy and rapid-firing capability. But what about the criterion that  
21 Kleck addresses in greater length than the other two? What about bullet wound  
22 damage?

23 28. In discussing the ballistics of assault weapons, specifically the AR-15  
24 rifle, Kleck writes:

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25 <sup>38</sup> Kleck Rebuttal Report, para. 60. It appears that there is a typographical  
26 error in Kleck’s sentence and that he meant to write “features of AWs.”

27 <sup>39</sup> *Ibid.*

28 <sup>40</sup> Expert Witness Rebuttal Report of Mark Hanish, *Rupp v. Bonta*, Case No.:  
8:17-cv-00746-JLS-JDE (C.D. Cal.), February 3, 2023, para 12; emphasis added.



1 Klarevas provides no evidence that an average round fired from an  
2 AW is more likely to inflict a fatal wound than a round fired from  
3 other guns (nor am I aware of any such evidence). In fact, the most  
4 common ammunition used in so-called “assault rifles” are .223 caliber  
5 and .556 [sic.] millimeter rounds—both very narrow bullets that  
6 create correspondingly narrow wound cavities in the victim.  
7 Consequently, *such rounds are less likely to cause the victim’s death*  
8 *than the ammunition used in civilian-style hunting rifles.*<sup>41</sup>

9 29. Again, Kleck is not a ballistics expert. And in my Supplemental  
10 Report, I established that the use of assault weapons in mass shootings resulted in  
11 higher average death tolls when compared to mass shootings that did not involve  
12 assault weapons.<sup>42</sup> Moreover, Kleck acknowledges that I “accurately” noted this  
13 relationship.<sup>43</sup> However, it is true that I did not devote any attention to the wound  
14 patterns and damage caused by assault rifle cartridges, especially ammunition  
15 designed for use in AR-15s. I did not perform such an analysis because I am not  
16 trained as a forensic pathologist. Nor am I a firearms engineer. And from the  
17 nature of Kleck’s assertion that .223-caliber and 5.56mm rounds are relatively less  
18 lethal, it appears that Kleck is mistaken. On the issue of how AR-15 rounds impact  
19 the human body, it is perhaps best to defer to Eugene Stoner, the creator of the AR-  
20 15, who, in Congressional testimony, explained the rationale for why he designed  
21 his rifles to use lighter ammunition:

22 There is the advantage that a small or light bullet has over a heavy one when  
23 it comes to wound ballistics. . . . What it amounts to is the fact that bullets  
24 are stabilized to fly through the air, and not through water, or a body, which  
25 is approximately the same density as the water. And they are stable as long  
26 as they are in the air. When they hit something, they immediately go  
27 unstable. . . . If you are talking about .30-caliber, this might remain stable  
28 through a human body. . . . While a little bullet, being it has a low mass, it  
senses an instability situation faster and reacts much faster. . . . This is what  
makes *a little bullet pay off so much in wound ballistics.*<sup>44</sup>

41 Kleck Rebuttal Report, para. 60; emphasis added. Kleck wrote “.556 millimeter rounds.” This, too, appears to be a typographical error. I believe he meant to write “5.56 millimeter rounds.”

42 Klarevas Supplemental Report, paras. 16-17.

43 Kleck Rebuttal Report, para. 59.

44 Quoted in James Fallows, “Why the AR-15 Is So Lethal,” *The Atlantic*,

1           30. The above testimony was delivered by Stoner before a House Armed  
2 Services subcommittee reviewing the use of AR-platform rifles by infantry  
3 soldiers.<sup>45</sup> In the years since, such rifles have also become recognized for their use  
4 by mass shooters.

5       **VI. MASS SHOOTING VIOLENCE INCREASED SUBSTANTIALLY AFTER THE**  
6       **FEDERAL ASSAULT WEAPONS BAN EXPIRED IN 2004**

7           31. *Kleck Rebuttal Opinion #6*: Prior research that I have published does  
8 not provide any serious evidence that bans on large-capacity magazines reduce the  
9 incidence of mass shootings.

10          32. In one sentence in my Supplemental Report, I noted in passing that,  
11 “after the [Federal] Assault Weapons Ban expired in 2004, mass shooting violence  
12 increased substantially.”<sup>46</sup> In support of this claim, I provided five sources.<sup>47</sup> One  
13 of those sources was a peer-reviewed article that I co-authored in a high-impact  
14 journal in the field of health and medicine. The article was cited for the limited  
15 purpose that it listed high-fatality mass shooting incidents that took place during  
16 and after the federal ban, with the number of such incidents occurring with far  
17 greater frequency after the ban than during it. Even though I did not state this  
18 explicitly in my Supplemental Report, the article I co-authored found that, during  
19 the ten-year time-period of the federal ban, there were 12 high-fatality mass

20 November 7, 2017, available at  
21 [https://www.theatlantic.com/politics/archive/2017/11/why-the-ar-15-is-so-](https://www.theatlantic.com/politics/archive/2017/11/why-the-ar-15-is-so-lethal/545162)  
22 [lethal/545162](https://www.theatlantic.com/politics/archive/2017/11/why-the-ar-15-is-so-lethal/545162) (last accessed February 21, 2023); emphasis added.

23           <sup>45</sup> Stoner’s explanation was provided in response to the following comment,  
24 made by the Subcommittee Chairperson Rep. Richard Ichord (D-MO): “One Army  
25 boy told me that he had shot a Vietcong near the eye with an M-14 [which uses a  
26 substantially heavier bullet] and the bullet did not make too large a hole on exit, but  
27 he shot a Vietcong under similar circumstances in the same place with an M-16  
28 [which is an automatic version of the AR-15] and his whole head was reduced to  
pulp. This would not appear to make sense. You have greater velocity but the  
bullet is lighter.” Quoted in *ibid.*

<sup>46</sup> Klarevas Supplemental Report, para. 22.

<sup>47</sup> *Ibid.*, note 10.

1 shootings (amounting to an annual average of 1.2 high-fatality mass shootings per  
2 year). In the first 13 calendar years following the expiration of the Federal Assault  
3 Weapons Ban (2005-2017), there were 47 such incidents (amounting to an annual  
4 average of 3.6 high-fatality mass shootings per year).<sup>48</sup> In other words, after the  
5 ban expired, the average annual number of high-fatality mass shootings in the  
6 United States tripled in comparison to the decade that the federal ban was in  
7 effect.<sup>49</sup>

8 33. Kleck does not dispute this claim. Instead, Kleck devotes three full  
9 pages of his Rebuttal Report to attacking my published study on LCM bans.  
10 Kleck's focus on this particular study is misplaced because California's statutes  
11 regulating LCMs are not being challenged in the present case, and they are not a  
12 subject of my Supplemental Report.<sup>50</sup> This section of Kleck's Rebuttal Report does  
13 not appear to be relevant to the present case, and, in any event, Kleck does not  
14

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15 <sup>48</sup> Louis Klarevas, et al., "The Effect of Large-Capacity Magazine Bans on  
16 High-Fatality Mass Shootings," 109 *American Journal of Public Health* 1754  
(2019), available at  
17 <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2019.305311> (last  
accessed February 20, 2023).

18 <sup>49</sup> Extending the time parameters out through the end of 2022, in order to  
19 capture every full calendar year since the Federal Assault Weapons Ban expired in  
20 2004, would document that there have been 72 high-fatality mass shootings in the  
21 18 years since the ban expired, resulting in an annual average of 4.0 incidents per  
year. This is yet another indicator that the frequency of high-fatality mass  
shootings continues to rise. See, Klarevas Supplemental Report, Exhibit B.

22 <sup>50</sup> Kleck Rebuttal Report, para. 64. It is worth noting that, in addition to my  
23 co-authored study of LCM bans, I cited four additional sources in support of the  
24 claim that the frequency of mass shootings increased substantially after the Federal  
Assault Weapons Ban expired, including a peer-reviewed article co-authored by  
25 two scholars—Lori Ann Post and Maryann Mason—that Kleck called "amateurs."  
Klarevas Supplemental Report, para. 22, note 10. At no point in his Rebuttal  
26 Report did Kleck raise any concerns about these four other sources. Furthermore,  
27 ridiculing scholars who lauded our research—and who have published peer-  
reviewed-journal research on the effect of the federal assault weapons ban—as  
28 "amateurs" is ad hominem criticism that does not address the substance of their  
findings.

1 dispute that the frequency of mass shootings increased after expiration of the  
2 Federal Assault Weapons Ban.

3 **VII. MASS SHOOTINGS RESULTING IN DOUBLE-DIGIT FATALITIES ARE**  
4 **POST-WORLD WAR II PHENOMENA IN AMERICAN HISTORY**

5 34. *Kleck Rebuttal Opinion #7*: There does not appear to be any reliable  
6 evidence that double-digit mass shootings are limited to the post-World War II era.

7 35. In my Supplemental Report, I discussed my review of American  
8 newspapers in an effort to identify mass shootings that resulted in 10 or more  
9 victims being shot to death. As a result of my search of the Newspaper Archive,  
10 going as far back as 1776, I was unable to identify any double-digit-fatality mass  
11 shootings occurring in the United States prior to 1949. Mass shootings resulting in  
12 10 or more victims being shot to death appear to be a modern, post-World War II  
13 phenomena.<sup>51</sup>

14 36. In his Rebuttal Report, Kleck criticizes my use of a historical  
15 newspaper repository to identify such extreme acts of gun violence. Specifically,  
16 he writes, “The problem with this source is that the number of newspaper stories  
17 about mass shooters would increase as newspaper coverage of the nation’s events  
18 increased, even if the number of mass shootings remained constant.”<sup>52</sup> This  
19 comment fails to tell us why Kleck believes, let alone how Kleck confirmed, that  
20 newspaper repositories covering a period of history that goes back to at least the  
21 founding of the United States would omit reporting on mass shootings. Because  
22 Kleck does not point to any known incident of mass murder that was not included  
23 in my survey due to the absence of media coverage, his critique of my reliance on  
24 newspaper repositories is unfounded speculation.

25  
26  
27 <sup>51</sup> Klarevas Supplemental Report, paras. 19-23.

28 <sup>52</sup> Kleck Rebuttal Report, para. 68.

1 37. Kleck also takes issue with my exclusion of incidents of “large-scale,  
2 inter-group violence such as mob violence, rioting, combat or battle skirmishes, and  
3 attacks initiated by authorities acting in their official capacity.”<sup>53</sup> Kleck opines:

4 This limitation conveniently eliminates mass killings of Native  
5 Americans by members of the U.S. cavalry (combat violence),  
6 employer-initiated violence by state militias against strikers (violence  
7 initiated by authorities acting in their official capacity), and white  
8 mob violence aimed at African Americans such as the 1863 draft riots  
in New York City, among other mass killings. The exclusions thereby  
create the false impression that there were no mass shootings prior to  
WWII.<sup>54</sup>

9 38. Kleck goes on to state that “[t]he historical reality is that there were  
10 many mass shootings in the U.S. long before either AWs or LCMs were  
11 available.”<sup>55</sup> If we include combat violence and mob violence, then Kleck is  
12 correct that there were indeed “many” mass shootings that occurred in the United  
13 States prior to World War II. For example, in the Battle of Antietam during the  
14 American Civil War, it is estimated that 3,650 soldiers were killed in a single day,  
15 many of the casualties the result of gunshot wounds.<sup>56</sup>

16 39. However, a mass shooting, as conceptualized by scholars and analysts,  
17 is a form of intentional criminal assault involving a firearm.<sup>57</sup> As a criminologist,  
18 Kleck knows this. In fact, one of the authoritative books on the topic, *Mass Murder*  
19 *in the United States: A History*, was written by Grant Duwe, who Kleck helped  
20 supervise when Duwe was a graduate student.<sup>58</sup> Duwe, in his book (which is an  
21 adaptation of his dissertation), explains why excluding collective violence is

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22 <sup>53</sup> *Ibid.*, para. 69.

23 <sup>54</sup> *Ibid.*

24 <sup>55</sup> *Ibid.*

25 <sup>56</sup> National Park Service, “Antietam: Casualties,” *available at*  
<https://www.nps.gov/anti/learn/historyculture/casualties.htm> (last accessed  
February 20, 2023).

26 <sup>57</sup> See, Louis Klarevas, *Rampage Nation: Securing America from Mass*  
27 *Shootings* (2016).

28 <sup>58</sup> Grant Duwe, *Mass Murder in the United States: A History* (2007), at 2.

1 appropriate: “The definition of mass murder used here also does not include riots,  
2 lynchings, and other *instances of collective violence*. I excluded these cases  
3 because it is often difficult to disentangle the victims from the offenders.”<sup>59</sup> The  
4 exclusion of such acts of violence is standard practice among scholars of multiple-  
5 victim criminal violence.

6 40. Kleck does not cite Duwe’s book, which excludes acts of large-scale,  
7 inter-group violence. Nor does he cite the Rebuttal Report of Clayton Cramer,  
8 which makes very similar exclusions.<sup>60</sup> Instead, Kleck relies on a book by Hugh  
9 Graham and Ted Gurr, published in 1969, to support his assertion that shootings  
10 resulting from combat or mob violence are considered mass shootings.<sup>61</sup> The  
11 Graham and Gurr book is largely focused on political violence (especially civil  
12 strife and war). As such, it is not an authoritative source on the parameters of mass  
13 shootings. In the few instances where the book did discuss mass shootings, it is  
14 clear that Graham and Gurr treated mass murder (including mass shootings) as  
15 distinct from large-scale, inter-group violence. Furthermore, Graham and Gurr are  
16 of the view that killing sprees lack a foundation in American history. In particular,  
17 after referencing “the chilling mass slaughtering sprees of Charles Whitman in  
18 Austin, Texas, and Richard Speck in Chicago,” Graham and Gurr remark, “Whether  
19 the current spate of public murder is an endemic symptom of a new social malaise  
20 is a crucial question that history cannot yet answer, other than to observe that  
21 *precedents in our past are minimal*.”<sup>62</sup> As noted in my Supplemental Report, prior  
22 to the shooting rampage of Charles Whitman in Austin in 1966, the only known  
23 mass shooting resulting in 10 or more casualties occurred in Camden, New Jersey,

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24 <sup>59</sup> *Ibid.*, at 15; emphasis added.

25 <sup>60</sup> Expert Witness Rebuttal Report of Clayton Cramer, *Rupp v. Bonta*, Case  
26 No.: 8:17-cv-00746-JLS-JDE (C.D. Cal.), February 3, 2023, at 20-22.

27 <sup>61</sup> Hugh Davis Graham and Ted Robert Gurr, eds., *Violence in America:  
Historical and Comparative Perspectives* (1969).

28 <sup>62</sup> *Ibid.*, at 623; emphasis added.



1 in 1949. Graham and Gurr do not identify any double-digit-fatality mass shootings  
2 that occurred prior to the 1949 Camden shooting spree that are consistent with the  
3 definitional parameters employed by Duwe or myself. For that matter, neither does  
4 Kleck.

## 5 CONCLUSION

6 In my Supplemental Report, I offered the following five findings:

- 7 1. *In terms of individual acts of intentional criminal violence, mass shootings*  
8 *presently pose the deadliest threat to the safety of American society in the*  
9 *post-9/11 era, and the problem is growing nationwide.*<sup>63</sup> Kleck has provided  
10 no credible evidence that contradicts this factual claim. In fact, with regard  
11 to one of the three data sets I reviewed, Kleck acknowledges that the data  
12 points confirm that mass shootings are on the rise.
- 13 2. *Mass shootings involving assault weapons, on average, have resulted in a*  
14 *substantially larger loss of life than similar incidents that did not involve*  
15 *assault weapons.*<sup>64</sup> Kleck has provided no credible evidence that contradicts  
16 this factual claim. In fact, Kleck agrees that I have “accurately” noted this  
17 relationship between the use of assault weapons in mass shootings and larger  
18 average death tolls.
- 19 3. *Mass shootings resulting in double-digit fatalities are relatively modern*  
20 *phenomena in American history, largely related to the use of large-capacity*  
21 *magazines and assault weapons.*<sup>65</sup> Kleck has provided no credible evidence  
22 that contradicts this factual claim.
- 23 4. *Assault weapons are used by private citizens with a far greater frequency to*  
24 *perpetrate mass shootings than to stop mass shootings.*<sup>66</sup> Kleck has provided  
25 no credible evidence that contradicts this factual claim.
- 26 5. *Jurisdictions that restrict the possession of assault weapons experience fewer*  
27 *mass shooting incidents and fatalities, per capita, than jurisdictions that do*  
28

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<sup>63</sup> Klarevas Supplemental Report, para. 12.

<sup>64</sup> *Ibid.*

<sup>65</sup> *Ibid.*

<sup>66</sup> *Ibid.*



1 *not restrict assault weapons.*<sup>67</sup> Kleck has provided no credible evidence that  
2 contradicts this factual claim.

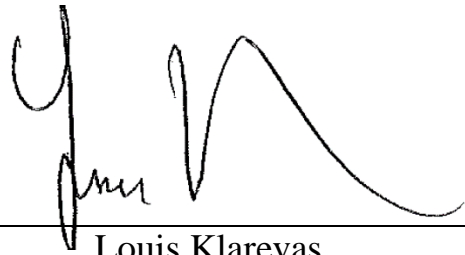
3 Based on these five findings, I opined that “restrictions on assault weapons have the  
4 potential to save lives by reducing the frequency and lethality of mass shootings.”<sup>68</sup>

5 I continue to stand by the findings and opinions in my Supplemental Report.

6 I declare under penalty of perjury that the foregoing is true and correct.

7 Executed on February 24, 2023, at Nassau County, New York.

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A handwritten signature in black ink, appearing to read 'Louis Klarevas', is written over a horizontal line.

Louis Klarevas

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<sup>67</sup> *Ibid.*

<sup>68</sup> *Ibid.*